An artistic illustration of three Canada geese in flight. The geese are shown from a side profile, flying towards the right. Their wings are spread wide, revealing detailed feather patterns in shades of brown, tan, and black. They have black heads and necks with a characteristic white patch on the cheek. The background is a soft, painterly depiction of a body of water with gentle ripples and a hazy, light blue sky. In the bottom right corner, several long, thin reeds or grasses are visible, rendered in a similar painterly style. The overall composition is dynamic and captures a moment of natural movement.

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JOHN N. DALTON, GOVERNOR

Commission of Game and Inland Fisheries

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Letters

THE BUDGET CRUNCH

Jack Randolph's article in the December issue reveals a startling trend of dwindling revenues for the operation of Virginia's primary wildlife protection and management agency, the Game Commission. This is apparently a nation-wide problem that has ominous repercussions for agencies and sportsmen alike. I applaud Mr. Randolph's initiative in soliciting the financial support of Virginia's sportsmen. I, personally, would applaud a 100% increase in hunting and fishing license fees. Hopefully, Virginia's sportsmen will continue to carry the ball financially for Virginia's wildlife resources and will strongly support an overdue increase in hunting and fishing license fees.

Tyler Blount
Abingdon

COLD DUCK

There is a comment I would like to make concerning "The Tale of Cold Duck" in your December issue. As a dog owner, I see from the article that Cold Duck did indeed run during hunts. I can surmise that this was to gain the exercise denied him since he was chained during his off-hunting days. The answer to this is simple: a long length of plastic coated 1/4" wire rope, a six foot high pen with the bottom wire buried below the grade. It is cruelty to chain such a dog.

Walter T. Assur
Falls Church

CHANGE TURKEY SEASON

On Thanksgiving Day my family and I enjoyed a large gobbler that I had been fortunate enough to bag with a shotgun during the last spring season. In the midst of the meal, a friend called with the remnants of a young turkey killed while deer hunting with a high-powered rifle. The sight of the mutilated bird was sickening. I would strongly support Game Commission action to reschedule the fall turkey season at some time other than deer season. To do so would help to promote turkey hunting as a precise pursuit among Virginia hunters and reduce the number of these magnificent birds that are mutilated with rifles.

Bud Good
Alexandria

Editorial

HOW DOES WILDLIFE RATE?

What do Americans really think about saving endangered species, hunting, and other issues that affect wildlife? The first report on a comprehensive study of American attitudes toward wildlife has revealed some interesting answers — including some that might surprise you.

The report analyzes initial findings of a 3-year study conducted under a Fish and Wildlife Service Grant by Dr. Stephen Kellert of the Yale School of Forestry and Environmental Studies. The study is based largely on an extensive questionnaire administered nationally in interviews with 3,107 people during 1978. The questionnaire dealt with specific issues, such as the tuna/porpoise controversy, as well as with general issues such as attitudes toward hunting.

In publicized controversial issues involving animals, the animals' "charisma" seemed to have more effect on attitudes and interest than the merits of the case. Of eight selected wildlife issues, the public knew the most about "killing baby seals for fur" (43 percent knowledgeable) and "effects of pesticides such as DDT on birds" (42 percent knowledgeable). The least recognized issue was "use of steel shot versus lead shot by waterfowl hunters" (14 percent knowledgeable). Only 34 percent indicated that they had some knowledge about the Endangered Species Act, and only 17 percent were knowledgeable about the much publicized snail darter/Tellico Dam controversy.

On a variety of questions, a majority favored protecting wildlife even at the expense of jobs, housing, and development projects. Fifty-five percent opposed the principle of building an industrial plant on a marsh needed by a rare bird species even if the plant would help solve an unemployment problem.

The public's support for endangered species protection when it would increase costs for an energy project depended on the animal involved and the nature of the project. Americans overwhelmingly supported protecting the bald eagle, eastern mountain lion, American crocodile, and an endangered butterfly. They opposed protecting an endangered plant, snake, or spider if it increased costs for an energy project.

On the controversial issue of animal damage control, the public was not altogether opposed to controlling coyotes that prey on livestock, but strongly preferred nonlethal control methods or hunting only individual coyotes known to have killed livestock. Most were strongly opposed to poisoning, and were also opposed to shooting and trapping as many coyotes as possible.

Attitude toward hunting depended on the purpose of the hunt. The public overwhelmingly supported traditional native American subsistence hunting and also supported hunting exclusively for meat, regardless of who hunted.

Although some observers have linked anti-hunting sentiment with an anti-wildlife management attitude, results of the study did not support this. Sixty percent of members of humane organizations and 61 percent of those opposed to sport hunting supported government management programs to "control" populations of deer and ducks.

Attitudes toward many issues varied considerably according to the respondent's age, sex, educational level, place of residence, and other factors. For example, support for protecting endangered species was strongest among the young, among the highly educated, those from urban areas and people with higher incomes. On the animal damage control issue, residents of the south — not the Rocky Mountain states, where predator damage is higher — expressed greatest support for shooting or trapping as many coyotes as possible. Residents of Pacific Coast states indicated the most protectionist sentiment.

Single copies of the report are available from the Publications Unit, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240 (202/343-2982).—HLG



This yellow perch was taken from Chickahominy Lake, one of Virginia's best lakes for the fish (above) Yellow perch and smallmouth bass often share the same waters.(right)



Yellow Neds

**Whatever you call them,
yellow perch are a surprise to
many Virginia anglers.**

by Bob Gooch

"Good eating." That comment was a concession on the part of Norm Seymour, my St. Lawrence River guide, as I dropped another yellow perch flopping into his roomy fish box. Norm, a veteran of countless seasons on the big international river, wanted to show me some of the fine smallmouth bass and northern pike fishing for which the St. Lawrence is noted. A year earlier we had teamed up for a fine muskie, my first ever.

My interest in the little yellow perch puzzled him. "That's a northern fish," Bob Martin once told me when I was trying to drum up some interest in yellow perch for Virginia waters. Martin, now of the Sport Fishing Institute, but then a fishery biologist with the Commission of Game and Inland Fisheries, had displayed no more interest in the colorful little fish than had Norm Seymour.

But I find the hard-hitting, scrappy, and particularly tasty little fish interesting.

Maryland anglers call them yellow neds, and those upper Chesapeake Bay estuaries give up some of the largest perch I have encountered.

I have caught yellow perch throughout the north country — in the Connecticut River in New England, Big Indian Lake on the Upper Peninsula of Michigan, and in the lakes of Pennsylvania and other northern states.

But there is good yellow perch fishing in Virginia, and surprisingly, you are likely to find them just about anywhere. Some waters stand out, however.

First, though, a bit about the fish.

The yellow perch is a true perch. The family is small, though the name is incorrectly used to describe a wide variety of fish that are not perch in the true sense of the word. Unfortunately, some outdoor writers have proliferated this incorrect usage. The white perch, for example, is a member of the true bass family, and bluegills, crappies, and sunfish are members of the big sunfish family though often lumped in a general "perch" misnomer.

The yellow perch is the smallest member of the perch family, which includes the more popular walleye and less known sauger. All three are found in Old Dominion waters, though the sauger is limited to a few streams in the extreme southwestern tip of the state. The yellow perch is the most widespread, and seemingly more adaptable to various kinds of water. It fins the brackish waters of the east, the western reservoirs, and all kinds of water in between.

Many Virginia anglers know the yellow perch as ringed perch because of the series of black bars that ring its yellow body. It is also often called raccoon perch, apparently because of the similarity between the markings of the fish and the tail of the 'coon. Maryland anglers know the little fish as yellow ned, and other common names include American perch (a highly appropriate one), red perch, and striped perch. Throughout most of its northern range the fish is called yellow perch, however.

Most abundant in the Hudson Bay drainage area of Canada, the yellow perch is found south into the Carolinas and west to Kansas. It has also been intro-

Good yellow perch fishing can be found throughout the state, but the Mattaponi River, Claytor Lake and Lake Anna stand out.

duced to many waters of the western United States. The best Old Dominion perch waters are in the eastern part of the state.

Over the years the Mattaponi River has produced its share of yellow perch. One of my favorite spring trips begins when I launch a light boat at the public launching ramp at Aylett on U.S. 360. From there I motor upstream and drift slowly back to the launching ramp. The trip always produces some yellow perch, though I have yet to take a citation fish from the river.

In recent seasons the Blackwater River has been conspicuous among Virginia waters yielding good-sized yellow perch. Popular Chickahominy Lake is always good, and so are Lake Prince, Maddox Creek, and Western Branch Lake.

Shallow Lake Drummond in the Great Dismal Swamp is a good bet for a mixed stringer of yellow perch, crappies, and fliers. Its inaccessibility limits fishing on the lake, however.

The yellow perch prefers quiet streams and ponds, and those slow-moving eastern streams offer near perfect habitat for the fish.

Inland lakes and ponds also furnish good yellow perch fishing, though it is spotty at best.

My introduction to Virginia yellow perch came years ago on Trice's Lake, a popular recreation lake in Cumberland County. The shallow old millpond was then loaded with yellow perch and chain pickerel. And just a year ago Gerry Almy and I, having filled our stringers with Lake Anna crappies, moved to a wind-swept point and an unexpected school of yellow perch. New Lake Anna promises to become one of the state's best yellow perch lakes. It gives up citation fish every season.

The New River, and Claytor Lake on the river, are the western waters for the yellow perch. I was not aware of the presence of perch in Claytor, and was pleasantly surprised a few years ago when I took a good one from a quiet, deep cove. The yellow perch's close kin, the walleye, is a native of New River, and Claytor is one of the best walleye lakes in the Old Dominion.

The yellow perch is no lunker. Those yellow neds I took in Maryland many years ago averaged 10 to 12 inches, a good perch anywhere. The St. Lawrence River perch that Norm Seymour was almost disdainful of were smaller, and in most waters the fish average less than 10 inches.

The world record yellow perch, a 4-pound, 3½ ounce, has stood since 1865 when the Civil War was winding down in war-weary America. It was taken in northern waters — near Bordentown, New Jersey. The Virginia record was set on March 25, 1972 with a 2 pound, 4-ounce fish from the New River.

The Virginia angler needs a 1-pound perch to win a Commission of Game and Inland Fisheries citation. Happily, fish of this size are fairly common in the Old Dominion. Anglers turn in 30 to 40 such fish every season, and many more are not reported for citations. Lakes Anna and Claytor, and the eastern waters furnish most of them.

Once a school is located, the yellow perch is not hard to catch. For reasons of safety the perch seem to school with fish of the same size, and once the angler takes a fish, he has a good idea of the size he can expect from that particular spot.

Perch tend to roam all over a body of water, but coves, bars, docks, weed beds, and breakwaters are good places to start fishing for them.

Because they are often caught accidentally by anglers in search of other fish, yellow perch are taken by a great variety of methods. During the winter and spring they seem particularly vulnerable to live minnows.

But yellow perch will hit just about any kind of natural bait. Many are taken on worms.

The yellow perch hits like an outsized bantam-weight, and it is a joy to catch on artificial lures. I like to cast small spoons and spinners to yellow perch. The little fish are also fine scrappers and give their best on ultralight spinning tackle. A 2-pound test line will land any yellow perch around, and the thin line improves the angler's chance of success.

It is rare that the perch fisherman is subjected to restrictive angling regulations. The little fish are highly prolific and tend to overpopulate their waters. It is just about impossible for even the most successful angler to damage the populations. There are no size limits, creel limits, nor closed seasons on yellow perch in Virginia — nor in most other states.

Yellow perch are taken commercially in some states.

As Norm Seymour says, the perch is a good eating fish. It and its relatives, the walleye and sauger, are among the tastiest fish in American waters.

But the angler runs into a problem when he attempts to scale his first yellow perch. Few fish are tougher to remove the scales from, but why try? Perch fillets are choice tidbits, and filleting is much easier than scaling. A thin-bladed fillet knife, honed to a fine edge, will make quick work of a catch of perch.

The result is a meal that will make an addict of the perch fisherman.



Students Ask Tough Questions



The Natural Resources Department at Lord Fairfax Community College is a good place to look for answers.

by George E. Burdick



“Why are whales being slaughtered?” “Who’s responsible for the James River being polluted?” “Why do we allow trapping of furbearers?”

These are only a sample of the type of questions that confront Natural Resources students at Lord Fairfax Community College. It’s obvious there are not always easy answers and the truth is sometimes very elusive.

The lure of an outdoor career has brought Lord Fairfax Community College young people from all parts of the country. “Outdoor-types” are attracted to the Shenandoah Valley because it’s close to several National Forests and Parks. They already know about wild animals, wilder-



ness areas and “pork-barrel” water projects when we get them. Constant exposure to radio and television where these issues are discussed has, at the least, made people more curious than they used to be about ecology.

Ecology and knowledge about Nat-

ural Resources are not only the domain of PhD-types who isolate themselves in “clouds of mystery.” Everybody is getting interested in ecology now because the answers to our energy problems are directly related to knowledge about management of plants and animals.

Consider the trapping controversy as an example. We get students who have been exposed to the anti-trapping propaganda until they sincerely believe all legal killing of wild animals should be banned. “No fur coat for me!” they’ll emphatically tell you during the heat of a class debate. These same individuals will later be seen wearing coats made from derivatives of oil, a non-renewable resource.

Trapping furbearing animals and using those furs to make clothing is one small way to relieve our dependence on foreign oil. There is always a surplus of wild animals which under proper management, man may safely harvest for his own use.

Some people are even opposed to hunting deer, though they show no aversion whatever to eating hamburgers which are often times made from somebody's pet steer. The point that needs to be made is that renewable natural resources play an important role in supplying man's basic needs, such as food and shelter. Under proper management and conservation, certain plant and animal resources could play an even greater role.

The trees that are burned during road building or land clearing operations could be used to keep people warm during the winter and thereby save that much oil. Better timber management and less waste of products made from trees is a partial answer to our complex energy problems.

The hard-to-answer questions keep coming from students who have read Racheal Carson's book *Silent Spring* and wonder why, a decade after her warning, we allowed Kepone to degrade the James River. "Why did nobody care?" "Who was supposed to have been checking the water quality?" "Do we really need to produce such poisons?"

I'm not certain those of us who attempt to answer provocative questions are always completely objective in our analysis of the political and economic reasons for environmental pollution.

We are supposed to be ecologists, but since an ecologist has been jokingly defined as "someone who knows everything about everything," it's doubtful there will ever be anyone that knowledgeable.

We have to compromise in manag-

ing natural resources, and we tell our students as much. Sometimes "good timber management" is not in the best interest of squirrels. Sometimes "good agricultural practices" are not in the best interests of ducks.

We simply have to make choices based on the best information available and the desires of, hopefully, informed citizens. As more people discover the recreational and economic benefits of proper utilization of renewable resources, it is inevitable that we will become less dependant on non-renewable resources.

The tested and proven principles of wildlife management, such as students are being taught in schools across Virginia and the country, might save us in the long run.

What guarantees the health and perpetuation of wild animals could very well solve our problems, too. Wildlife, Forestry and Animal Science students should be encouraged and commended for their efforts to find answers. The issues they are debating and the truths they are discovering should do much to improve the quality of life for all mankind.



Future conservation professionals want to know the "whys" of such issues as Kepone.



Personalities

by Francis N. Satterlee

Captain Ernest W. Yeatts

Ernest was born in the town of Meadowview where his father operated a saw mill, did carpentry work and ran a small general purpose farm. He recalls that the elder Yeatts was a right handy man who, although not an avid hunter, was devoted to the outdoors and had a deep appreciation for things wild. Both his father and mother taught Ernest and his brothers and sisters about the great worth of these God-given resources and about the value and beauty of the woods, water and wildlife.

Summers, when Ernest wasn't in school, he worked on the farm doing the usual chores. During the season, if the time was available, he hunted and fished with the boys with whom he grew up. Following graduation from Meadowview High School he was employed as manager of a feed, seed, farm machinery and hardware store Abingdon.

In 1942 he enlisted in the U.S. Army and received his basic training at Camp Chafee, Arkansas. Next he was assigned to an Ordnance Company in the Aleutian Islands. All told, he spent time on Unmak in the Fox Island Group and on the islands of Shemya, Adak and Attu. In January of 1946 he was discharged and returned to farming in Virginia. Later that same year he accepted an appointment with the Washington County Virginia Sheriffs Department. After having served about five months he learned of an opening in the Game Commission, applied and was hired as warden in Washington County.

During September of 1965, Ernest was promoted to the position of Supervising Warden with responsibility for the 14 county (Great Mountain Empire) area which is known as the Daniel Boone District of the Commission's Law Enforcement Division.

The most rewarding aspect of his work, as a warden and now as a Supervisor is that he and his co-workers are serving the sportsmen and women of the Commonwealth. He finds the pleasure that these people derive from the rightful use of this wildlife and fisheries resource very satisfying. This is especially true when he reviews the positive accomplishments that have come to be during the 33 years that he has been involved in perpetuating what he considers to be "one of the best sportsmen's program of any state wildlife organization in the country. It has been a great privilege to work with all the people in charge of the Commission and in particular those in the Law Enforcement Division. . . for it was with that group that quite naturally I had the most contact. The personnel working for the Commission are highly professional and of whom the citizens of the Commonwealth can justly be proud."

Ernest and his wife, the former Ruby Hutton from Abingdon, make their home in Meadowview. They have one married son, Ernest S. Yeatts, Jr., a fine daughter-in-law and one-year old grandson, Ernest S. Yeatts, III.

*Game Warden Supervisor,
Daniel Boone District*



Unlimited is just what TU is. Unlimited effort is exerted by its members in Virginia to protect the state's cold water streams (habitat suitable for trout). In the process many non-TU members, and even non-fishermen, benefit.

TU believes in total watershed management; wise, professional fisheries management; and recognition of the biological needs of the fisherman. These practices benefit not only trout and trout fishermen but affect many citizens as wildlife habitat is improved, water quality increases and chances of flooding are reduced.

Local TU chapters (there are ten in Virginia) take monthly readings of water quality on streams in their areas. This information, including such factors as dissolved oxygen content and the presence (if any) of harmful bacteria, is provided the State Water Control Board and other agencies.

TU's increase the amount of trout fishing available by improving existing streams, creating new trout waters in suitable streams and by reconstructing streams damaged by channelization or storms.

Skyline Chapter, located in Lynchburg, is engaged heavily in a reconstruction project on 8,100 feet of the Tye River in Nelson County. Once considered by many one of the premier trout streams in Virginia, the Tye received extensive damage from Hurricane Camille in 1969 and was assaulted again by tropical storm Agnes in 1972.

Subsequent channelizing did little to restore the stream to its previous condition, and may have hindered its recovery.

Chapter President Bill Bensiek reports that structures of natural stone from within the streambed will be built "to narrow the stream, increase flow and improve water temperatures during low flow periods."

Not only will trout and fishermen benefit from such projects, but the local economy will get a boost as more fishermen come back to an improved Tye.

TU members import and rear wild trout, such as the Bitterroot strain of wild browns, for stocking new streams. A small, spring-fed pond in Augusta County, equipped with an automatic feeder designed by TU member Richard Friberg, often is used to rear fingerling trout to stocking size. Then these colorful one-



Trout Unlimited is Living Up to Its Name

by Bob Belton



Trout Unlimited members construct a gobion to help stabilize a stream's banks.

year-olds are transferred to such specially — managed streams as Mossy Creek, in whose cold, fertile waters they may increase considerably in girth and length in a year or two. Such efforts are undertaken in close coordination with fisheries management personnel of the Commission of Game and Inland Fisheries.

Stream clean-up campaigns, such as last spring's on Back Creek by Shenandoah Valley chapter members from the Waynesboro area, resulted not only in less litter but a little excitement as well. Departing a little way from the stream, incoming chapter president Urbie Nash spied a timber rattler — in time to avoid a confrontation. He had narrowly avoided another rattler in Greene County earlier that week.

Not all of TU's projects are directly related to trout and trout stream improvement — some are more people-oriented. The Thomas Jefferson Chapter in Charlottesville is building an access ramp to Moorman River near the city's Sugar Hollow Reservoir so handicapped citizens can more easily enjoy this fine stocked stream. The brainchild of project director Brad Jones, a University of Virginia senior, this project is scheduled for completion soon. A mixture of soil and cement will be used to construct a ramp to the specifications of designer Mark Osborne. "The soil cement will blend in with the natural surroundings," says Jones, "and the ramp will be built on an ideal site selected by Price Smith of the Commission of Game and Inland Fisheries." Smith, himself a TU member, will act as coordinator between TU and the Commission. Anyone who is physically limited will be able to use the ramp.

While real estate development, mining, logging, agriculture, road-and bridge-building and water impoundments are desirable and necessary parts of our economy and our very existence, these activities at times can be a trout stream's worst enemies. TU members monitor these activities, work with local landowners and cooperate with the State Water Control Board to modify or stop those that are destructive.

As an example, cooperative efforts between TU'ers and the Virginia Department of Highways and Transportation resulted in an extension of Interstate 64 westward from Interstate 81 without destruction of Simpson's Creek, a trout stream of exceptional quality. This successful cooperation brought TU's national Silver Trout Award

Concerned fishermen are banding together to protect threatened trout habitat.



Checking water quality periodically is part of TU's surveillance program. (below)
With wise management, cold water streams should continue to yield trout like this. (left)

to Mel Thomas, the Department of Highways and Transportation's Water Quality Coordinator, and the national TU's Outstanding Chapter Award to the Shenandoah Valley Chapter.

Virginians are active in TU not only at the state level but on a national basis as well. Corbin Dixon of Fishersville is a Director, Jerry Schuder of Waynesboro is a Vice-President, and Keith Argow, formally associate professor of Forestry at VPI&SU, is Executive Director.

A lot has been accomplished by TU in Virginia since its establishment in 1973, but the Commission of Game and Inland Fisheries estimates that, according to present trends, by the year 2,000 Virginia's trout stream resource will be reduced by 50% while fishing pressure will have increased four-fold. Clearly, there is much still to be done. If you would like to be part of this important, rewarding effort, write Corbin Dixon, Rt. 1, Fishersville, VA 22936. Chapters are located in Abingdon, Bassett, Blacksburg, Charlottesville, Harrisonburg, Lynchburg, Richmond, Roanoke, Warrenton and Waynesboro.





A Herbarium Primer

*Starting a herbarium is an
interesting and useful way to learn
more about plants.*

by Bill Weekes

Want something to fit in with your love of nature? Want something to demonstrate this love while on those free weekends walking through woods, fields, along seashores? Interested in learning the names and peculiarities of nature's cast of photosynthetic characters? Interested in accumulating this cast of hundreds as permanent house guests? Yes? Then you'll be interested in starting a herbarium and maintaining it as a hobby.

A herbarium is an organized collection of preserved plant specimens. You travel hill and dale in search of various species — horsetails, club mosses, mosses, ferns, conifers, or the greatest group of them all, the angiosperms (flowering plants). You bring 'em back (temporarily) alive; preserve them by pressing them dry and treating them; then you mount, file, and store these specimens, presumably to be taken out from time to time — for all time — to be looked at and studied.

The practice of collecting and preserving plants is nothing new, having begun in 16th Century Italy. Today there are about 1,200 herbaria in the world. There are great privately owned herbaria, and herbaria attached to various governmental bodies and institutions of higher learning. Many notable herbaria, such as those found in New York, Paris, and London, contain millions of specimens.

As you scour the countryside in your car, you keep a sharp lookout. "What's that flower?!" you suddenly exclaim, perhaps to a companion. You jam on the brakes. They squeal. You jump out. You're either pleased by a new discovery, or displeased by being "tricked" into finding something you already have.

But this herbarium business requires persistence, a lust for discovery, a willingness to learn about things like taxonomy and morphology.

As you collect specimens, you discover not only where various species can be found, but characteristically in what habitats. If you're organizing your species according to families, you discover that among the angiosperms, there are significantly numerous Asteraceae (daisy-like flowers), and Fabaceae (clovers and peas).

You also notice flora's morphology, the body parts of plants, flowers, and fruits — their shapes, colors, time of appearance. Mimosa's bloom comes in June, replaced by pods by late July; wild plum ripe by turn of June, gone by July, at peak of blackberry picking. The white of Queen Anne's lace is almost everywhere in June to mid July, but disappears thereafter.

How do you collect specimens after you find them? First, carry a field press with you in your car. Specimens should be pressed soon after being collected. Plants begin to dry almost as soon as they are clipped. They should dry flat for easier identification, and compactness. A wrinkled specimen is not only unsightly, but unacceptable by any standard.

If you leave the press in the car, carry a container (a metal vasculum or plastic bag) into the field. The container, if kept airtight, will help keep a specimen fresh until placed in the press.

When you prepare a specimen for the field press, note the following: clip the sample to eventually fit the mounting paper without eliminating essential specimen material (stems may be bent in N or W shapes, if necessary, to fit in the press and later the herbarium



Be sure to carefully arrange specimens on paper before pressing.

paper); arrange the specimens the way you wish it to finally appear — showing all pertinent parts. Some roots, fruits (and cones) are too bulky to press. Place them in separate bags, small boxes, or even envelopes.

The plant press is a simple device. Basically, it is two pieces of wood between which 30 or 40 specimens are blanketed in paper and squeezed until dry. Each specimen is placed on blotter paper (12 x 18 inches) which lies on corrugated cardboard. This is sandwiched into a folded newspaper and placed on top other specimen packages. When the press is full, you tighten the straps (or ropes) that run around it. The squeezed specimens are then ready to dry.

Specimens may be dried naturally or artificially. A full press may be put in the sun or in some warm place (such as an attic) with heavy objects, like bricks placed on the press to keep the specimens compact. With this method, drying paper should be changed daily to speed up the drying and prevent molding. However, this method takes one to two weeks before specimens are sufficiently dry. Heating specimens in the kitchen oven, no warmer than 110° F is a good method. After two days (and nights) the specimens are done.

Next step in herbarium preserving is mounting. Herbarium sheets, standard 11½ by 16½ inches, should be fairly stiff, and of high rag content so as not to later yellow. Four methods of mounting are: using herbarium tape; brushing the underside of specimens with glue; placing specimens face up on glued glass before transferring them to sheets; and weighing specimens down on sheets and, using can or bottle, squirting liquid adhesive plastic over various plant parts.

The field press is a critical tool when collecting specimens.



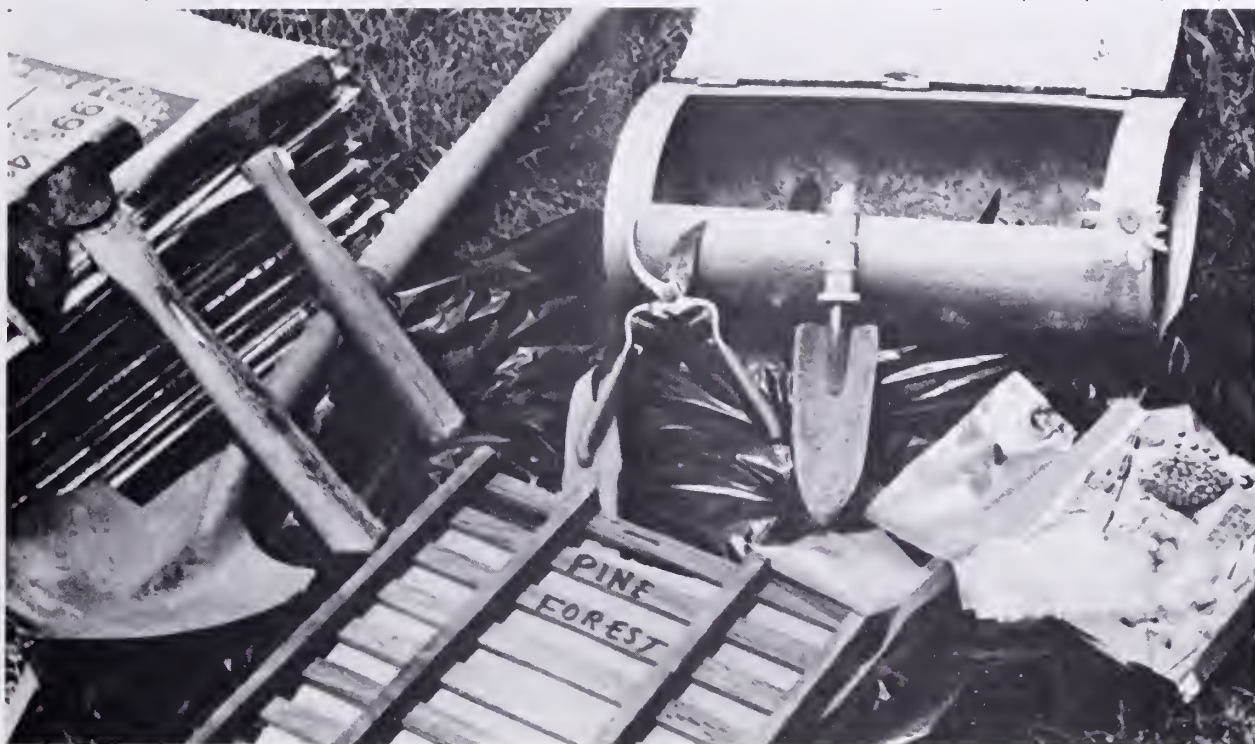
When using the second method, any good grade, non-staining glue or paste is appropriate. Be sure to arrange the specimen the way you want it before finally placing the glued sample on the sheet. Mark lightly with pencil beforehand where you want to place certain parts of your glued specimen. Do not use plastic or celluloid tapes. They are not permanent.

Remember, eye appeal of your specimen is important. Parts of more than one specimen should not appear on the same sheet. Some specimens will present problems. Parts of some specimens are bent or curved. They refuse to lie flush. Iron bars or other long heavy items may be placed across such glued parts until they have dried. Also, conifers, particularly hemlocks, tend to lose their needles as they dry. You may either treat the specimen with a plastic spray before mounting, or simply collect the needles and place them in a small cellophane bag and attach to the bottom of the herbarium sheet.

Of equal importance to the specimen itself is the information about it. While in the field, a notebook is a must. After you collect a specimen, record its name (if you know it), its habitat, plants associated with it, its size, exact location, and date of collection. On a slip of paper, tag the specimen with a number, and tag the information about the specimen with the same number. Often a dried specimen is not recognizable from what it was alive.

Much of the above information accompanies the specimen on the herbarium sheet — on a label customarily found in the lower right hand corner. Exact location not only reminds the collector where to find a certain species, but also tells future collectors. Date

Tools needed in pursuing your hobby include a hatchet, rock hammer, shovel, vasculum, clippers, scoop and plastic garbage-bags.



collected tells the specimen's stage in its reproductive cycle. Future taxonomists and students should also be interested in who collected and identified the specimen.

But what of the specimen itself? How is it identified? Each living thing has a common name (some have several), and a scientific name, a binomial first and second name, usually in Latin or Greek (*Cornus florida* for flowering dogwood). How do you find a specimen's name? Some plants are easy to identify. You've lived with them all your life, and just know them. Popular publications also help: like C. Frank Brockman's *Trees of North America* (Golden Press, New York, 1968); Boughton Cobb's *A Field Guide to the Ferns* (Houghton Mifflin Co, Boston, 1963); the Peterson-McKenny's *A Field Guide to Wildflowers* (Houghton Mifflin Co, Boston, 1968); and Floyd S. Shuttleworth's *Non-Flowering Plants* (Golden Press, New York, 1967). Taxonomic textbooks are also available in college, university, and perhaps, public, libraries.

The taxonomic texts contain keys, or systematic guidelines, for tracing down the identity of tough specimens. To be able to use these keys effectively, you must be able to know the language of taxonomy. In keying a leaf, would you know the word "simple," "compound," "pinnately branched," "parallel venation," "acute," "entire," "truncate"? What's a "stipule"? What does it mean to say a petiole is "glabrous"?

Of course, if a specimen is too hard to key down, it can always be sent to one of the many herbariums around the country. In fact, visit a herbarium if you can. See how the pros do it. A herbarium should also be able to inform you on methods, equipment and

material needed for the pursuit of your hobby.

After specimens have been mounted and information about it written carefully on the labels, they should be stored. Specimens are usually stored on cabinet shelves or in boxes. They should be treated so that they will not be damaged by insects. Specimens should also be arranged for easy accessibility.

Keeping specimens in a couple of sturdy boxes with tops, boxes acquired from a grocery store is a good method. Into each box moth balls (naphthalene) should be deposited to keep insects out. Remember, never mix naphthalene with other kinds of moth balls or flakes, such as paradichlorobenzene. If the two are mixed, a black gummy residue will form on the herbarium sheets.

How do you file your herbarium? How do you store specimens so that you can retrieve them with ease? You may arrange specimens alphabetically, according to genus and species, or taxonomically, according to phylogenetic relationships. Specimens should be filed in manilla folders about the size of the herbarium sheets. The covers of the folders should contain the names of the specimens inside. Folders may contain specimens of one genus, or of one family, or of whatever criteria seems feasible and practical for your collection.

Specimens in large herbaria are stored on shelves of durable cabinets, each shelf representing a family. The specimens of one genus are placed in one manilla folder, and these generally are arranged alphabetically in each family. The families, from top to bottom, are arranged — not alphabetically — but according to plant-evolution history. In a large collection, a card-reference file is desirable.

Getting to the Point

For a young pup, getting the knack of bird hunting isn't all that easy.

by Ben Fulton

My name is Jill. I'm a dog, a bird dog. Some say I'm not a dog, not yet. Actually, I'm a six-month-old pup.

For a long time I didn't know I was a dog. I thought I was a "people," maybe even a member of the gentry. My master's wife says I must be royalty, the way I'm treated.

The earliest point in life I remember is living with my mom, three brothers, and two sisters. One day a rugged, outdoor man came to see us. He talked about bloodlines, short noses, big feet, markings, posture, carriage, sturdy builds, and hunting instincts.

None of this meant much to me, but being a little vain, I liked it when he patted my head and said I was "the pick of the litter."

When I was eight weeks old the friendly man returned and took me away. He knows all the right things to do to keep a pup occupied and happy. What he doesn't know, Buck does; he lives here, too. Buck is a grown English setter and about the smartest and best gundog in these parts.

I quickly learned the best way to gain favor is to imitate Buck. Do everything Buck does; that's my motto. Well, almost everything, except slipping out of the pen when the gate's open. We both got our butts bopped with a leather glove for that minor indiscretion.

Recently, strange things began to happen. Our Rowner put a leather collar around my neck. At first, the dang thing drove me up the wall. After a day or two, I forgot it.

Later, I thought our master was changing my name to "Whoa." He filled my dish with food. Beastly hungry and salivating like a hound dog, I lunged forward. Much to my dismay, he held my collar firmly and said, "Whoa." Every time I moved he repeated, "Whoa." Soon, I began to get the message; he wanted me to stop, to freeze.

This little game may have lasted a minute or two, but it seemed an eternity. Finally, he clucked to me, gently pushed me toward the food, and said, "Okay, girl."

After he left I asked Buck, "Hey, what was all that 'whoa' stuff?"

It was the first time I ever heard Buck laugh. "Aha," he said, accusingly. "You haven't been paying attention. Haven't you heard him order me to 'whoa'?"

"Sure. So what?"

"If you're smart, you'll watch next time."

I may be dumb but I'm not stupid. The next time Buck ate, I took a ringside seat. Our owner poured the food into the dish and commanded, "Whoa, Buck."

Fantastic! Without being touched, old Buck froze like a zombie in mid-air. The master patted Buck's head and stroked his back. Buck didn't bat an eye. Finally, he said, "Good boy, Buck," and clucked. Buck dived into the food.

"The purpose of 'whoa' is to train us for quail hunting," Buck explained later.

"Oh? Tell me about hunting birds, Buck."

"Okay. Do you know what 'birdy' means?"

"Birdy? Is that the same as squirrely?" I quipped.

He ignored me. "Birdy is what hunters call our hunting instincts. Remember when the sparrows light in our pen?"

I nodded.

"You creep up and stop. You're at point, or standing the birds, as they call it. Then you do the next natural thing, even though it's wrong. You bust into the sparrows."

"Yeah. I try to catch them."

"The purpose of 'whoa' is to teach you to hold that point. With quail, the hunter strides past you, kicks up the birds, and shoots as they flush."

"Hey, this is going to be a snap."



"Hold it," Buck growled. "All I did was explain birdy. It's a good trait, but even some curs are birdy." Buck wasn't running a diploma mill. He took this schooling seriously. "Another thing," he continued, "discipline is the name of the game. Our master says the three most important elements of training and hunting are discipline, live birds, and dead birds."

"What does that mean?"

"Discipline is a means of communication between your master and you. This is important in training and a necessity in hunting. And you find the live birds and the hunter downs them. If this firm relationship between a man and his dog doesn't exist they might as well pack it in."

"The 'whoa' training is a part of discipline, right?"

"Right. Soon he'll teach you to retrieve, or fetch. He'll start you off on a short leash with a tennis ball. When you 'whoa' and 'fetch' in a manner pleasing to him, you'll be rewarded with those dog treats you like."

"I'll grab that tennis ball before it hits the ground."

"Yeah, but remember the important thing is to bring it back to him. After you study fetching, you'll start the 'dead bird' routine. He'll hide a small piece of cheese in the grass, say 'dead bird,' and encourage you to locate it. The object is to train you to associate 'dead bird' with something on the ground that you must hunt and find. On a hunt, that something will be a dead bird."

"I've been meaning to ask you, Buck. What's all this banging of feed pans and the shotgun, firings closer and closer while I'm romping about?"

"The master is checking your reaction to noise. He wants you to become accustomed to loud noises so you won't be gun-shy. A gun-shy dog is out of it."

"I can see why. By the way, when will I get to hunt?"

"Any time now. He'll probably put you down with me for a couple of hours some morning and give you a chance to track, find, and point live birds — not that you'll have any luck. You'll poop out in no time."

I hate to admit it, but Buck was right. On my first outing, I spent most of my time catching up. He found three coveys and I found a wild turkey feather.

When Buck came to a stand, I was so excited I forgot all about "whoa" and bumped the birds. That bit of numskullery got me a good scolding.

The next time Buck pointed, I remembered enough to honor him, although I was 15 yards away and couldn't smell a thing. Much to my surprise our owner picked me up and set me down right behind Buck where the bird scent was strong. He kept repeating, "Whoa, Jill." I tried not to breathe.

Then, he walked past us into the covey and knocked down two birds when they rose. With the shooting, the flying feathers, the falling birds, and Buck's instant reaction, I almost lost my cool again. Suddenly, it dawned on me someone was saying, "Dead bird, Jill. Dead bird." By the time my cluttered brain told me what to do, Buck had done it.

I'll say this for Buck; he didn't 'carry' me. I had to earn every plaudit I got. On the last covey, we had one bird down. I scampered after it, trying to resemble a graceful gazelle. (Buck said I was more like a hog on ice.) I would have made the find and fetch, except Buck is much faster. However, by the time I got through sniffing and mouthing that one I was — as Buck had predicted — pooped.

The next day we held a critique. "How'd I do?" I asked anxiously, hoping Buck would be lavish in his praise.

"Not bad for a beginner," he replied. "You'll get better." With that ringing endorsement, he curled up

There are two types of dogs. One is the "bitch" and the other is the "dog." The bitch is the one that does the work and the dog is the one that gets the credit.

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The Temperamental Spring

Nestled in the Northern Virginia Countryside is one of nature's rare phenomena.

by Christine Bolgiano

Within a pleasant half-hour's walk from my farm in the Shenandoah Valley is a small, tree-rimmed hollow, at the bottom of which is a rather inconspicuous sandy depression. It appears to be an unremarkable feature of the landscape — until water suddenly begins to bubble up through the sand, pours out at the rate of hundreds of gallons per minute for 10 to 30 minutes, then just as suddenly ceases, leaving the hollow calm and quiet until the next outpouring. Thomas Jefferson called it "Syphon Fountains," attributing the phenomenon to the principle of siphon action; Valley natives named it Tide Spring, and have a wide variety of imaginative explanations.

Although "Tide Spring" is a highly suitable name for the intriguing geological feature known as an ebb and flow spring, ocean tides have no relationship to the action of springs of this kind. Indeed, most ebb and flow springs occur at great distances from the sea in predominantly limestone areas. Characterized by periods of strong flow alternating with periods of reduced or non-existent flow, true ebb and flow springs are entirely distinct from ordinary wet weather springs. Because of their periodic action, ebb and flow springs have been compared to geysers, but neither gaseous emissions nor warm water temperatures are associated with them. And while some geysers are famous for their punctuality, most ebb and flow springs perform in capriciously irregular cycles that defy attempts to discover long-term patterns.

In explaining ebb and flow springs by siphon action, Jefferson echoed J.T. Desaguliers, an English scientist highly skilled in practical mechanics, who first proposed the theory in 1724. No more reasonable explanation has been identified by any investigations made since that time. According to the siphon theory, the operation of an ebb and flow spring may be visualized by picturing an underground cavern which water may enter from any number of fissures, but from which it may exit through only one. The exit fissure is located near the bottom of the cavern and wanders upward through the surrounding limestone, then downwards, to open at the surface at a point below the bottom of the cavern. Water flows into the cavern





Shown here at a high point, Tide Spring attracts many curious to see this unique sight
Here the spring is shown at its lowest point (lower left)



until sufficient pressure exists to force it over the hump in the more or less air-tight exit fissure, and siphon action is thus initiated. If water flows through the siphon at a faster rate than it enters the cavern, the siphon will be broken when the cavern is drained and spring flow will cease until the cavern is full enough to begin the cycle again.

Several factors, all indiscernible to the naked eye, may cause the flow cycle to occur at unpredictable intervals. Local weather conditions will affect ground water level and rate of flow, which in turn will have an impact on the rate at which the cavern fills. Crevices throughout the surrounding rocks may allow air to seep in, disrupting the siphon action and causing erratic interruptions of spring flow. Seasonal freezing and thawing also creates passages through which air may leak into the siphon system. Clearly, an unusual balance of natural forces is necessary to produce the special characteristics of an ebb and flow spring.

So unusual is this combination of circumstances that only about 40 ebb and flow springs are known to exist throughout the world. More than half are located in the U.S. — several each in Virginia, West Virginia, Tennessee, and Missouri; one each in Pennsylvania, Nevada, New Mexico, Utah, and Wyoming. Others have been reported in Belgium, Yugoslavia, and New Zealand.

Tide Spring has been one of the most studied of the ebb and flow springs in the U.S. From 1927 to 1932 an automatic water-stage recorder documented the behavior of the spring and revealed in detail the peculiarities of its flow. Most puzzling to geologists was the apparent relationship between the amount of discharge and the length of the preceding quiescent period. Although this proportional relationship existed to some degree throughout the study, the most spectacular illustration occurred when a discharge lasting more than three days followed four and a half months of complete inactivity. Scientists could only hypothesize that an obstruction of some kind had temporarily impounded the water, contributing to the irregularities in flow usually caused by variations in water supply and air-tightness of the siphon.

Tide Spring has been a local attraction since Jefferson visited it in the 1700s — a fact still remembered with pride. Throughout the 19th and 20th centuries, the spring was a popular picnic area for Valley residents and their guests, who came in anticipation of observing its unpredictable cycle. Sometimes they were disappointed, even after waiting a full day. The various owners of the farm on which the spring is located have been content to leave the area in its natural state, neither commercializing it nor refusing access to the curious. Today the spring is a part of local folklore, its history passed on through word of mouth and its odd behavior a favorite topic of debate among neighbors and friends. The unremarkable hollow that shelters such a remarkable phenomenon provides a lovely resting place in which to ponder the awesome combination of monumental forces and delicate balances that shape our magnificent planet.

Make an Engine Log for Your Boat

Date	Engine Started	Engine Stopped	Trip Total		Total Hours Accumulated				Fuel Tank	Maintenance and Other Data
			Hrs.	Min.	On Engine		On Oil			
					Hrs.	Min.	Hrs.	Min.		
	Forwarded from Previous Page				290	30	60	0		
7-1-78	7:00AM - 10:00AM		3	0	293	30	3	0	24.2	OIL CHANGE INSPECTION TRIP PLEASURE TRIP
	12:00 - 5:30 PM		5	30	299	0	8	30		
7-5-78	6:00AM - 9:30 AM		3	30	302	30	12	0	19.5	DRIFT-FISHING
	12:00 - 4:30 PM		4	30	307	0	16	30		
7-8-78	8:00AM - 11:30 AM		3	30	310	30	20	0	17.0	SEA CANY TROLLING
	12:30 PM - 3:00 PM		2	30	313	0	22	30		
	Carry Forward				313	0	22	30	17.0	

by Francis M. Cox

It's the best way
to use your boat
more efficiently.

In these inflation-ridden times, the recreational boater can take a tip from the Coast Guard and industry and help save fuel and time by keeping an engine log.

It's easy to do and fun to look at during those cold winter months to remind yourself of just where you went!

From this log pictured here, you can determine the date of each trip, time run, total hours on the engine, hours of oil for each trip and the amount of fuel used. Additionally, a maintenance record helps you keep track of just where the money went!

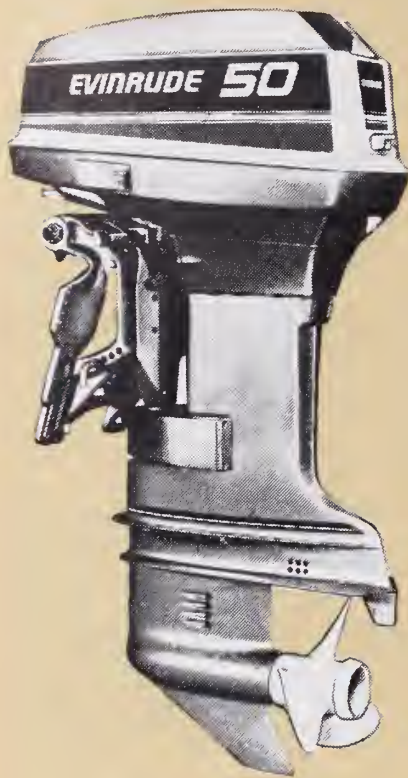
Another point that should be considered is this: when and if you want to sell your boat, it's quite a sales point in your favor if you have kept the log. It tells the buyer just exactly what he is getting.

If your boat is several seasons old, the best thing to do is to estimate as closely as possible the total hours on your engine and pick up the running log at your next outing.

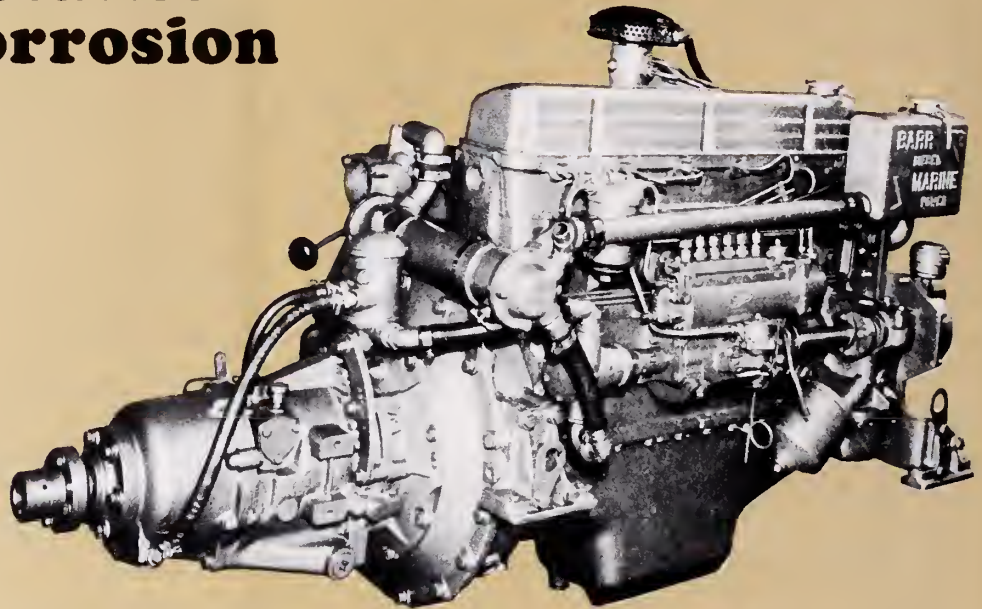
Good luck!

On the Waterfront

Edited by Capt. James N. Kerrick



Marine Firms Fight Metallic Corrosion



Salt water power-boaters are usually aware of the potential of metallic corrosion. But fresh water boating enthusiasts don't always realize the same thing could happen to them.

The blistering and pitting that are the signs of corrosion can be the results of electrical current between the kinds of metal. It can occur on "split lines," the crevices created when two parts of similar metals are fitted together. Corrosion can attach metallic parts exposed to the air, especially in salt water areas.

Salt water is a notorious conductor of this unwanted electrical current. But even freshwater carries it, and the situation is aggravated with pollution levels.

Recently, a manufacturer drew up a list of 11 ways its outboards are treated, inside and out, to protect them from corrosion.

1. Impregnation. Water passages and other internal cavities are flooded with an impregnating compound. A baking operation leaves the passages sealed with a hard corrosion-resistant surface.

2. Lyfanite. All exposed aluminum parts are subjected to a Lyfanite bath which does two things. It converts an aluminum surface to a tough, corrosion-resistant amorphous chromate surface. It also makes an excellent bonding surface for the primer.

3. Zinc Chromate Primer. A protective undercoating of zinc chromate is sprayed on clean, degreased castings, again helping to seal against corrosion.

4. Premium "Baked-on" Enamel. The entire motor, including the powerhead, is sprayed with a liberal coat of high quality acrylic enamel paint before the final baking operation. This gives the outboard a hard and corrosion-protected finish.

5. Stainless Steel. Corrosion-resistant stainless steel is used on shafts, bolts, screws and fasteners where an impervious metal is needed.

6. Sealed Motor Hood. Besides helping to quiet the outboard, this shields the top section of the motor from spray, rain, steam and fumes that could be injurious.

7. Special Alloys. Special alloys are developed and used for their strength as well as their resistance to corrosion.

8. Plastic. Non-corrosive and tough, special plastics are used throughout outboards. Plastic water pumps with stainless steel liners. Plastic prop spacers, linkage locks, blocks, straps. Even a plastic potted Ferrite ignition coil.

9. Neoprene. It's used for hoses, boots, spark plug covers. And a liquid neoprene is applied to all electrical terminals and connectors.

10. Electronic Ignition. Capacitor Discharge (CD) ignition is used because of the absence of moving parts, reducing the possibility of corroding parts.

11. Sacrificial anodes. Last but definitely not least, sacrificial zinc protectors can be mounted on the cavitation plate or transom areas. Corrosion will eat away at the zinc before it attacks other metals, thereby protecting the other submerged parts of the powerplant.

VIRGINIA WILDLIFE

Growing Up Outdoors

by Sandy Coleman

Sly As A Fox

Illustration by Dick Bernard

There are so many stories and legends surrounding the fox that it is difficult to tell just where fiction ends and fact begins.

Is the fox really the enemy of farmers through his poultry-killing habits? Is it true that he can "out-fox" just about every living creature — including man? In any case, the fox is certainly one of the most intelligent of nature's creatures.

In Virginia we have two kinds of foxes, the grey fox and the red fox. The grey is a native Virginia fox, but the red was imported in the early 1700's by colonists from England who wanted to continue the noble British tradition of fox hunting.

The grey fox, true to its name, has a fur of a mostly grey color, with white underparts and a rusty tinge along the neck, flanks and under-side of the tail. There is a black line down the middle of the back continuing along the tail and even to his face.

The grey fox likes to live in brushy areas and is noted for his ability to climb trees. During the day he will rest in brush or a tree hollow, venturing out at night to do his hunting. His diet includes mice, squirrels, small birds, eggs and fruit.

The red fox, our British import, differs from his grey cousin in several ways. In coloring, his fur ranges from sandy-colored to red-brown, with white on the underparts. The back of the ears are black, as are the fronts of the legs. But the coloring of the red fox varies from animal to animal.

He prefers wide, open spaces, as opposed to the grey's love for brushy areas. He is an alert and proficient tree-climber, and will occasionally kill a farmer's poultry. He also, however, keeps down much of the harmful rodent population!



The young of both the grey and red foxes are born in the spring, usually in April. The average size of the litter is four cubs, but this, too, can vary. The young are blind until they are about ten days old, and are weaned in about one month. The mother fox will later teach her young how to hunt, and, thus, how to survive. They will leave their parents when they are about two months old and become adult-size at six months.

The fox has few natural enemies, but they include the bobcat and, reportedly, eagles and other birds of prey.

According to all reports, the fox is, indeed just about as cunning as is frequently said. Just ask any fox hunter!

It Appears to Me

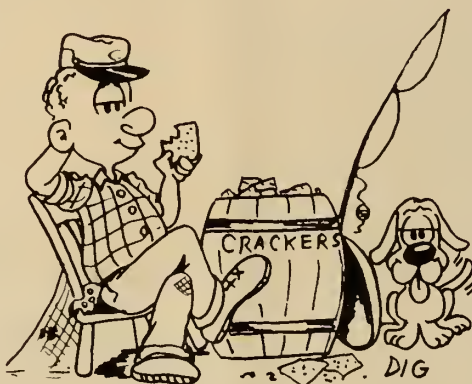
by Curly

... A PERSON OUGHT TO HAVE ONE

Now here is something for those of you that are town managers or mayors or persons who have a chance to be in on the planning of certain activities which take place in your community. The United States Tennis Association has published two free books which just might be what you are looking for. The first one, which outlines the guidelines for getting community tennis activities started, is entitled "Financing Public Tennis Courts." The other, "Lighting Outdoor Tennis Courts," is a guide to the methods and the process of lighting tennis courts. Both of the publications are written in terms that are easily understood instead of the usual gobbledygook we have come to expect. Request them from the Publications Department, USTA Education and Research Center, 729 Alexander Road, Princeton, New Jersey 08540.

If any of you are really interested in learning about the current list of Endangered Wildlife in this area, there is a way that you can obtain a list and it is free. Write to Bureau of Land Management, 350 South Piccett Street, Alexandria, Va. 22304. Request *Eastern States Endangered Wildlife*. . . in it you will find listed all state and federally-listed endangered and threatened species in the thirty-one states which are either adjoining or east of the Mississippi River.

I reckon that a person wouldn't be too far off if he or she would guess that among our readers there would be some, if not a goodly number, of kinfolks that were reaching that time of life which necessitates some special care. This, of course, is especially true if these folks are residents of long-term care type places such as nursing homes. That being the case, you will find comfort in the fact that there is a state agency



which can be of assistance. Within the Virginia Office of Aging there is a special department that deals with the needs of citizens. Appropriately enough, the department is called the Citizens Assistance Unit. Equipped with statewide toll-free telephone service, the CAU provides concerned individuals with a sympathetic ear regarding their problems. Consequently, if any of you have concerns about someone over 60 years of age that is in this category, just contact: Citizens Assistance Unit, Virginia Office on Aging, 830 East Main St., Ste. 950, Richmond, Va. 23219 or by calling toll-free 1-800-552-3402.

... FOR YOUR BOOKSHELF


"Wildlife In Your World" isn't really what we know as a book and therefore probably it is stretching it somewhat to talk about it in this portion of the column. Howsomever, it is so good and so innovative that I feel compelled to let you in on it. Developed by the National Wildlife Federation, "Wildlife In Your World" is an educational kit designed to provide youngsters, especially in the elementary grade category, with some downright delightful details

about the animals that they probably see most anytime during their adventurous days. This kit, which is the first of a series, uses photographs to illustrate the subject matter. Now, these photos are not just your ordinary "snapshot" garden variety . . . these are full color 8½ x 11 inch pictures which are printed on heavy stock that has been child-proofed, if you will, by a protective coating. On the reverse side is detailed information about the subject including a description, feeding details, size, where it fits into the wildlife picture with other species, and other tidbits.

Also included in the kit is a forty-page book of short stories about the animals pictured and a twenty-page teacher's guide. Although this gem was designed for teachers to use in classroom situations, it is a marvelous vehicle for use by loving parents who will take the time to use it to share their own experiences and the information in the kit with their own youngsters. You can own this beauty by contacting the National Wildlife Federation, 1412 16th St., NW, Washington D.C. 20036 with your check or money order for \$8.95. Like the saying goes. . . "you will be glad that you did."

... AND THEN

One of the best-loved, down-to-earth philosophers that ever travelled the globe was a fella named Will Rogers. His humor was the brand that was understood worldwide and it was a *kind* type of fun-poking that didn't wound like so much that we hear today. In this wildlife business that we are in, we have our own "Will Rogers," and his name is John Madson. Ole Joh cuts right through all the confusion with his thoughts such as one he wrote not too long ago, "too many think that songbirds are strictly for aging maiden ladies and men with lace on their binoculars."



February Fools

**The second month can be
a deceiver.**

by Pat Cooley

Once again flimsy puffs of snow tumble and topple, gently tossing a frigid white blanket over all trembling creations. Unwelcomed this time, for a few days ago the swelling thermometer reported a mild, soothing sixty nine degrees. Basking, blushing, glowing, rejoicing beneath the feverish, penetrating solar furnace, thoughts of "spring has sprung" lodged in thawing minds, thankful suffocating snow falls had finally ended.

Anxious elfin crocus and daffodil shoots (probably planted too shallow) greenly tipped the soggy surface, tearing, climbing, groping through the softened soil, shyly peaking through, smiling at the inviting sun.

Limbs, branches, twigs — thrust their nimble fingers toward the sky, lifting clamped, cramped winter buds up to their Sun God, pondering the miracle of life. By the end of this exuberant day, scaly jackets, shielding winter buds from severely damaging ice, snow and wind, will slowly zipper back scabby flaps, barely opening their doors, the toasting sun granting life to immeasurably wee stems, flowers and leaves tightly wrapped and folded in miniature pockets. The arrival of spring will be certain when every compact

bud bursts, clouding staggering tree tops with smoky reds and greens and yellows.

Pretending last year's tulip shaped shells, crisply perched on stretching arms of the yellow-poplar, were cones of its fresh spring fruit, I grew impatient yearning for the cones to explode into pastel yellow-green flowers. But, the streaming, whipping flowing branches of the willow would be one of the first to unfold its delicate buds, displaying a bright yellow-green spring cloak.

As the thirsty sun drank the seething moisture from the perspiring earth, sponging, baking its floor, I could not resist loafing, flopping into a golden soft carpet of sweeping winter wheat, beckoning me to lull in its warm bed. Drowsy and sluggish, each filtering ray of sun nailed me to the ground — seeping into my skin — healthily pinkening and blushing, popping out every freckle — streaking, lightening my blond hair — singeing, sweltering me in my jeans and sweatshirt. Procrastinating, I lethargically slumbered a while, truant to my work, soaking up all of the sun's rosy radiance.

Awakening from my tranquil snooze, raising a heavy head, straining, squinting through the sun's

bright haze, inquisitively surveying the area, I discovered I was not the only sloth lounging on this sedately warm February day. Nodding, napping, dozing, four dogs, three cats, a horse and sheep sprawled, sacked out, hypnotized by the summoning sun, all seeming to be under an anesthetic, in a deep coma — spring fever — the sun intensely sucking, soaking, drawing, draining all strength.

On the other hand, the forest and the fields were brimming with life. Lustrous cardinals blazed through the rocking limbs, warming their gleaming red feathers in the sun, hoping to be the first to announce the arrival of spring, happily whistling and singing. No sign of the proud red-breasted Robin hopping and scratching in the loosened soil of the garden.

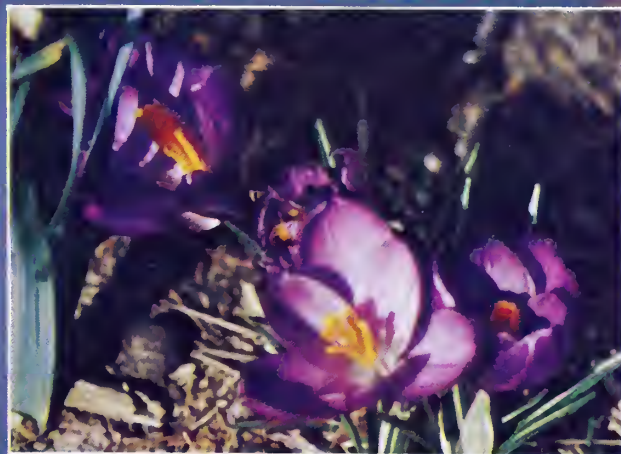
Towhees, cardinals, sparrows and jays dart and dive, high and low, through the woods' budding edge, pursuing drowsily turbulating flies, bees, wasps and moths — sluggish, crawling insects, just awakened from their winters' trance. Dawdling, piddling, loitering, occasionally zooming, the dazed insects already search for crevices and caverns for building sites and incubators. Craving the taste of an insect, after a bland winter diet of corn and other grains, the vigorous bird enjoyed succulent worms, scrumptious flies and tangy larvae.

A soft, furry Eastern Mole was dotting the field with his shallow mounds, as he burrowed for insects and worms. He spent the harsh winter in much deeper underground tunnels, extending two feet deep. It was a treat to once again see him straggling overland, but when his disturbances reach my lawn, I will probably change my mind.

Two high soaring, frolicking red-shouldered hawks, drifting, cruising, sailing through the azure, ultramarine sky, flared their white-banded and fanned long tails, smaller male's powerful legs dropped and dangling, barred, rusty underneath streaking through the blue sky. Screeching drawn out, two syllable screams, descending, lurching — mating is brewing in their keen minds. Swooping towards the female, seeming to collide in mid-air, the loyal pair coast over the tree tops, sinking, disappearing in the wet woodlands, nesting perhaps in a twenty to sixty foot tree crotch.

Squawking, scolding, jumbled garble reached my loafing ears, traveling from the finally ice-free pond. The colorful male mallards vehemently complained and protested, argued and brawled over the duller, mousey females, all residents of the small pond. Excited, swollen with anticipation, a male clamped his strong bill to another male's velvety green head, forcing it under the still cold water. Using the same violent technique, another fiery male grasps a dowdy female, mounting her in the rippling water. After further rumpusing and bathing, the mallards paired off, waddling over the soggy fringe of the pond, searching for a well camouflaged nesting site to tuck away ten to sixteen or more fragile, creamy colored eggs over the next month. Remembering the precious soft black and yellow balls of fluff scooting over the pond last May, I eagerly watched the now grown





Willow branches are one of first to unfold its buds.
 (opposite page)
 The sun brings out stems and (inset) crocus from the once
 frozen winter ground. (above)
 Winter buds like this one (left) slowly unfold during February.



Scenes like this remind one that winter is more than present in February.

ducks, cunningly dallying towards a possible concealed nest, a sure sign of pleasant weather to come, I thought.

But, just a few days later, a wet February snow encompasses the pond, coldly suppressing any warm thoughts of spring, the mallards tipping in icy waters, rarely venturing past the pond. The cold, frigid snow halted the spring migration of a few greater scaups and a lone female redhead, finding refuge on the pond for the day. It was entertaining to watch these diving ducks arch their necks and bodies, (unlike the surface feeding mallards) descending to the murky bottom of the pond for stringy algae and aquatic weeds, bobbing to the surface like buoys; disappearing, appearing, disappearing, appearing. All of this would have been much more enjoyable viewed from a sunny, yawning meadow, sprawled in the golden wheat. Even a seagull lighted on the cold pond for a few minutes, bringing back warm day memories of tractors roaring and gulls hovering, lurking to ambush freshly plowed fields.

Somehow the cold seems colder after this tepid stupor sandwiched between harsh snow storms. Winter, I am afraid, will be around for another month, it's February fooling once again!

Outdoor Notebook



Plants of Williamsburg

It's hard to imagine anything more beautiful than plants and the people who settled Colonial Williamsburg were aware of that.

They planted many beautiful trees, herbs and flowers in the area, adding to the abundant beauty that the area already possessed in the form of native plants and trees.

Plants of Colonial Williamsburg by Joan Parry Dutton and illustrated in full color by Marion Ruff Sheehan is a beautifully done guide to the more than 200 plants found in the Williamsburg area. Each plant is identified by its common name in addition to its technical name, which reflects the most recent developments in biological nomenclature. What makes this book even more interesting is Mrs. Dutton's description of the historical background of each plant to link it to the colonial period. Brief biographies of early plantsmen explain the roles they played in the world of horticulture.

The beautiful, pocket-size book is not available from the Game Commission, but can be ordered from: The Craft House, Williamsburg, Virginia, 23185. The cost is \$6.95, plus \$.75 for handling.



Richmond Art Show

The 8th Annual Wildfowl Carving Show and Art Exhibition sponsored by the Northside Richmond Lion's Club is going to be held this year on February 9 and 10. Last year's show drew over 3,000 visitors and this year's promises to be even more of a success.

Approximately 70 wildfowl artists and carvers will be exhibiting their works, most of which are for sale. Wildfowl art is continually growing in popularity and this Richmond-area show is one of the best opportunities to see the best in the field.

In addition, the show boasts the somewhat unique Great James River Decoy Contest and Decoy Painting Contest.

The February 9 and 10 exhibition will be held at the Virginia State Fair Grounds, located in northside Richmond.

Virginia's 1981 Trout Killed By Oil Spill

More than 500,000 trout were killed Wednesday, January 2, 1980, when oil from a leaking home fuel tank found its way into the Game Commission's Marion Fish Hatchery's water supply. The fish kill wiped out all of the brook and brown trout and half of the rainbow trout fingerlings being raised in the hatchery for stocking in Virginia's waters for the 1981 trout season. An additional 400,000 trout in holding ponds, larger fish scheduled for stocking in the next few months for the 1980 season, are showing signs of distress from the oil. By press time, these fish appear to have escaped much damage.

Only fast action on the part of Marion Hatchery employees averted a total wipe-out of all the fish. The distressed fish were first noted by Herb Haulsee, hatchery superintendent. The source of the oil was quickly located by Gary Martel, fisheries biologist at the hatchery, and the flow of polluting oil into the hatchery was halted.

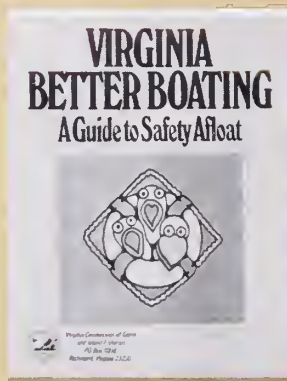
Herbert Gray is directing the recovery operation and is keeping a close eye on the fish in the rearing ponds which are showing signs of distress. If these fish survive, the 1980 trout season will not be affected by this disaster. Loss of the brood fish would be a terrible blow to Virginia's trout rearing program.

Jack Hoffman, Chief of the Game Commission's Fish Division, has requested the Virginia Water Control Board to investigate this oil spill and to fix responsibility. The lost fingerlings destined for stocking in 1981 are valued at more than \$120,000 and may be irreplaceable.

Gift To Game Commission

Mr. and Mrs. Marchant D. Wornom of Richmond, Virginia have recently donated 25% of a 121 acre tract of land which they owned. In doing so, the Wornoms enabled the Commission to acquire the 121 acre parcel of land which adjoins the Chickahominy Wildlife Management Area with no expenditure of state funds. Normally land purchases of this nature are accomplished by the state paying 25% of the appraised value with the remainder of the

money coming from the Federal Government. In this case the Richmond couple donated that portion of their land which satisfied the 25% portion of the purchase, the balance was in the form of Federal funds and the sportsmen and women of the Commonwealth benefitted through the additional land area which brought the total acreage of the Chickahominy WMA to 4,846 acres.



Boating Safety Course

In the cold months of winter, it's sometimes hard to think of the boating weather ahead. But now's the best time to make sure that when you hit the water, you'll be ready.

The Virginia Better Boating Course, a program of self study put together by the Game Commission safety experts is a great way to teach newcomers about boating, or to make sure that the "Old Pros" haven't forgotten anything!

The course costs just \$1.00 and includes chapters on preparing your boat for the good times ahead, safety and first aid while aboard and the basic "rules of the road."

When you've finished the course, complete the test at the end, send it to the Game Commission for correcting and — if you pass — you'll receive a certificate and card saying that you've successfully completed the course. It's an impressive credential.

Send your check for \$1.00 payable to Treasurer of Virginia to: Boating Safety Course, P.O. Box 11104, Richmond, Virginia, 23230

Duncan New Game Field Coordinator

Jack W. Raybourne, Game Division Chief for the Commission of Game and Inland Fisheries, has announced that Robert W. Duncan has been appointed as Game Management Field Coordinator for that Division. Duncan's appointment becomes effective on January 1, 1980, at which time he will assume the responsibilities and position vacated by C. H. (Kit) Shaffer. Kit, a renowned game biologist, retired from the Virginia Commission of Game and Inland Fisheries on December 31, 1979 after having served with the organization since September of 1947.

Duncan, a native of Radford, Virginia, joined the Virginia Game Commission as a biologist during January of 1978. Prior to that time he had been employed with the U.S. Forest Service, National Park Service and the Kansas Forestry, Fish and Game Commission. He is a graduate of the University of Tennessee where he received a Bachelor of Science degree in Forestry and Wildlife and a Master of Science degree in Wildlife Management.

Fish Research Programs Outlined

William E. Neal, Field Coordinator for the Game Commission's Fish Division, has summed up some of the research programs which were conducted by that Division during the past year. He stated that: "During 1979, the Fish Division initiated one of the most ambitious fisheries management programs ever in the Commonwealth. By the mid-1980's when the program is in "full flower" every public inland sport fishery in the state will be included in some sort of active fisheries management program.

"While initiating its new programs, the Division maintained its old standbys. Approximately 4,700,000 warmwater and 700,000 coldwater fishes were stocked in the state's public waters. State record numbers, which included 2,500,000 striped bass, 1,115,000 walleyes, 23,000 tiger muskellunge and 275,000 northern pike, were included in these numbers. Surveys leading to multi-year management proposals for all the state's large reservoir fisheries and a cold water stream inventory should provide the basis for the most diversified cold water fishing opportunities ever offered Virginia anglers."

Habitat And Harvest Produce Deer

Habitat manipulation and harvest regulations have been the key factors in Virginia's remarkable whitetail deer management program that has been responsible for a mushrooming of the populations over the past several decades. Stocking has played a limited role — that of introducing seed stock to areas where deer had been depleted.

Though abundant in colonial times, the whitetail deer had all but disappeared from the state by the turn of the century. Its recovery began with the establishment of the Game Department in 1916 and the subsequent introduction of game to barren areas. The initial stock came from Alabama, Michigan, North Carolina, Pennsylvania, and Wisconsin. Even so only 1,870 deer were imported from other states. Another 1,167 deer have been transplanted within the state by live trapping in areas where there is an excess of animals.

The comeback was slow initially, but during the past decade every hunting season has produced a new record. The harvest has doubled in the last 10 years. The Virginia white-tail herd is now estimated as well in excess of 400,000 animals, and the annual harvest consistently tops 70,000.

The extensive management of timber on private lands in the east and on public lands in the west is a primary reason the herds have grown so dramatically. The harvest of timber has "daylighted" the forests, encouraging the growth of forbs, honeysuckle, sprouts, and other browse type growth.

Where possible the game managers of the Commission of Game and Inland Fisheries have seeded logging roads, created clearings in forests, utilized fields and abandoned home sites, built watering ponds, and established salt licks.

By requiring the hunter to tag his kill and clear it through a checking station, the Commission has been able to maintain an accurate county-by-county record of the deer kill. Convenience stores and service stations serve as volunteer checking stations under the supervision of local game wardens. This accurate account of the harvest has proved invaluable in guiding the Commission in the regulation of the harvest by setting limits, permitting antlerless hunting, and restricting the kill where necessary. Generally, however, the healthy growth of the deer herds has brought on the gradual and careful liberalization of hunting regulations. Either-sex hunting is possible all season in a few counties where the populations exceed the carrying capacity of the range.

The whitetail deer is Virginia's number one big kill animal — up from almost nonexistence a few years ago. — Bob Gooch

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Gourmet Game

Recipes for Virginia's Fur Bearers

by Joan Cone

Virginia is blessed with many fur bearing animals, and while some of these are hunted, others are trapped. There are regular hunting seasons for squirrel, rabbit, raccoon and woodchuck. During the trapping season, many raccoons and muskrats are taken, and at times you'll see signs along the highways in December, January and February for these frozen animals which the trappers are selling. Muskrats are usually under a dollar, while raccoons generally cost two dollars or more.

All of these animals are delicious and inexpensive eating. Rabbits, squirrels and woodchucks are tougher animals and need some type of steam cooking in order to make them tender. Muskrats and raccoons are more tender.

After these animals are skinned, be sure all surface fat is removed before cooking. Save all the livers and hearts as they are excellent sauteed or prepared the same as you would chicken livers.

The fur bearers can all be cooked successfully in slow cooking pots, and no matter how tough they may be, they'll come out tender and moist.

BARBECUED ANIMALS IN SLOW COOKING POT

3 or 4 squirrels, 2 rabbits, 2 or 3 muskrats or 1 woodchuck, cut in serving size pieces
salt

1 teaspoon instant chicken broth

$\frac{3}{4}$ cup water

$\frac{1}{4}$ cup molasses

$\frac{1}{4}$ cup catsup

$\frac{1}{4}$ cup vinegar

1 tablespoon Worcestershire sauce

2 teaspoons instant minced onion

Salt your animal pieces and place them within your slow cooking pot. Then in a small bowl, dissolve chicken broth in water. Add remaining ingredients to broth and mix well. Pour this mixture over the meat, cover and cook on low heat for 7 to 8 hours.

ORIENTAL RACCOON

1 medium raccoon, cut into serving pieces

$\frac{1}{4}$ cup honey

3 tablespoons vinegar

1 cup stock or chicken bouillon

3 tablespoons sherry wine

2 tablespoons soy sauce

$\frac{1}{4}$ teaspoon garlic salt

Place raccoon pieces in slow cooking pot. In a small bowl, mix rest of ingredients together and pour over raccoon pieces. Cover and cook on low heat for 7 to 8 hours. Remove grease from liquid before thickening it for gravy.

ROASTED RACCOON

1 small to medium-size raccoon

1 teaspoon salt

1 bay leaf

1 small onion, sliced

3 apples, peeled, cored and quartered

3 yams, peeled and halved

1 teaspoon cinnamon

2 tablespoons brown sugar

$1\frac{1}{2}$ cups fresh apple cider

Preheat oven to 350° F. Place entire raccoon in a deep pot and add salt, bay leaf and onion. Cover raccoon completely with cool water and bring to a boil. Then cover pot and simmer until raccoon is almost tender — about 30 minutes. Remove raccoon from pot and discard water. Place raccoon in roasting pan and arrange apples and yams around it. Sprinkle apples and yams with cinnamon and brown sugar. Add cider and cook, uncovered, in oven until raccoon is brown. It will take about 30 minutes more. Baste several times with the cider during roasting process.

A pressure cooker is excellent for any tough animal, and here is a unique recipe for rabbit.

SAUERBRATEN RABBIT

1 rabbit, cut in serving pieces

flour

1 teaspoon salt

3 tablespoons fat

1 cup water

$\frac{1}{4}$ cup vinegar

1 onion, sliced

1 bay leaf

1 cup (8-ounce carton) dairy sour cream

5 to 8 gingersnaps, crumbled

Dredge rabbit pieces in flour to which salt has been added. Brown rabbit in hot fat in cooker. Add water, vinegar, onion and bay leaf. Cover and cook at 15 pounds pressure for 20 minutes or until rabbit is tender. Reduce pressure instantly. Add sour cream and 5 crumbled gingersnaps. Cook until thick and smooth, stirring constantly. If sauce is not thick enough, add rest of crumbled gingersnaps.

RABBIT PIE

1 rabbit, cut in serving pieces

flour

salt and pepper

3 tablespoons butter

1 onion, sliced

3 or 4 carrots, peeled and diced

2 or 3 potatoes, peeled and diced

rich biscuit dough crust

Dredge rabbit pieces in flour to which salt and pepper have been added. Melt butter in a deep skillet or an electric frypan and brown pieces of meat. Cover with water and simmer, covered, until rabbit is tender — about $1\frac{1}{4}$ to $1\frac{1}{2}$ hours. Add onion, carrots and potatoes to skillet and cook until vegeta-

bles are done. Stew gravy should now be thick enough, but if not, thicken with a flour and water paste. Pour stew into a greased, 2-quart baking dish and cover with a rich biscuit dough. Be sure dough is secured to rim of casserole and then make several slits in crust. Bake in a 400° F. oven for 25 to 30 minutes or until crust is brown and gravy bubbles.

BAKED SQUIRRELS

- 4 to 6 squirrels, cut in serving pieces
- flour
- vegetable or bacon fat for browning
- 1 bay leaf
- ½ package onion soup mix
- 1 can (10¾-ounces) golden mushroom soup
- ½ soup can milk

Preheat oven to 325°F. Roll squirrel pieces in flour and then brown in hot fat in a skillet. After browning, remove pieces from skillet and place in a deep oven casserole with cover. In a small bowl, mix bay leaf, onion soup mix, mushroom soup and milk. Pour this mixture over squirrels. Cover and cook in a slow oven for 1½ to 2 hours or until squirrels are tender.





J. W. T. T. T.

The Redpoll

The redpolls are finches of the far north, hardy birds of the high arctic. Many of them nest beyond the Arctic Circle, and they have the distinction of wintering further north than any other songbird. Only the most severe conditions drive them south.

Loath to leave the tundra, they move but a short distance, except when the food supply fails. Even in such instances they rarely descend beyond New England, so their visits to Virginia are seldom and sporadic. Significant numbers reached the state in 1960, and an unprecedented invasion occurred in 1978.

When they do come south, they frequent open weedy fields and scrubby wood edges, where they feed on the seeds of grasses and low shrubs. Like their cousins, the goldfinches, they are fond of thistle seeds and come readily to feeders. In the north, they seem more inclined to feed on the seeds of larger trees, such as hemlock, alder and birch.

There are two distinct species of redpoll, with several subspecies of each, but their taxonomic status remains in doubt. In parts of their range, the two seem to interbreed freely, yet in other areas they live side by side with no tendency to hybridize. Size and color differences among individuals further confound the situation.

As a species, redpolls form a circumpolar breeding pattern, reaching southward, in North America, to mainland Canada, and, in Europe, to the British Isles. Most widely distributed is the common redpoll (*Carduelis flammea*) which nests across Siberia, Scandinavia, through Iceland and Greenland to North America. The hoary redpoll, smaller and paler, nests even farther north.

Redpolls have adapted in a number of ways for life in the far north. Most notable is the adaptation of the esophagus, the narrow tube connecting the throat to the stomach. This organ is enlarged to form what is, in effect, a crop, which songbirds do not normally have. This allows the birds to ingest more food during the short winter daylight than would otherwise be possi-

ble. They further have the ability to increase digestive efficiency at very low temperatures, when ordinarily this capacity would be impaired.

Their breeding habits are adapted, as well, to life in a cold climate. Redpolls start incubation with the first egg, rather than wait until the clutch is complete, as do most songbirds. The new-born youngster can then be kept warm by the parent birds until it is feathered.

In winter, redpolls gather in compact flocks, numbering from a few to a hundred birds. Often, in the southern parts of their range, they consort with goldfinches and siskins, which they resemble in both size and actions. The call of the redpolls will distinguish them at once, however. It is a hard metallic, *chut, chut, chut*, quite unlike the softer calls of their relatives.

When observed closely, the red forehead and black chin of the redpolls are diagnostic marks. The breast of the male is suffused with rosy red. The young of the year resemble the female, but lack the red on the head.

It was this immature plumage that confused Alexander Wilson, who was the first artist to figure the redpoll, in his *American Ornithology* (1808-12). Wilson assumed that the birds without the red foreheads were the females, and so described them in his text. He had shot his specimens on a trip to upstate New York, having never seen them in the environs of his home in Philadelphia.

It remained for his collaborator, George Ord, to correct the mistake in a later edition of the book. In 1814, one year after Wilson's death, a heavy influx of redpolls reached Philadelphia, providing Ord with a good series of specimens. He pointed out that *all* of the adult birds, male and female, had red crowns, though they differed in other aspects of plumage.

Ord, in his supplemental notes, goes on to describe the thousands of redpolls for sale in the Philadelphia market that winter of 1814. The little finches were fat, considered an epicurean treat, and eagerly sought after as food. Ord, who died in 1863, writes that he never again saw redpolls near Philadelphia.

